

Portable all-in-one honeycomb matrix dryer, with loading, combines dehumidifying plastic resin and conveying into a single compact unit.

Comet's CCD all-in-one honeycomb matrix dryers combine drying, dehumidifying, and portable two-stage (optional three-stage) conveying, all packaged into a single unit. The dryer is bundled with a hopper, cart, and built-in vacuum loader for mobile drying on demand. The honeycomb matrix rotor enables dehumidifying, regeneration, and cooling cycles to occur at the same time while delivering a dewpoint of -40°F (-40°C) or an optional -50°F (-45.5°C) if required. This series of dryers is especially suitable for drying hygroscopic plastics such as PET, PC, PBT, and PA.

Standard Features

- Stainless steel construction for all material contact parts. Stainless steel receivers are controlled from the dryer panel.
- Molecular sieve/gel sintered honeycomb rotor provides low dewpoint air without contaminating raw material.
- Twin condensers and a mounted return air filter quickly and accurately cool down regenerative air.
- Return air filter mounted on the inside ensures a contamination-free honeycomb rotor.
- Non-proprietary PID microprocessor temperature control system with regenerative temperature settings, real time displays, and a weekly timer.
- Drying temperatures up to 320°F (160°C) with operation savings up to 35%.
- Feeding system equipped with a shut-off valve to ensure no material is left in the conveying line.
- Insulated, stainless steel drying hopper utilizes a down blowing design with cyclonic air exhaust to avoid heat loss and improve drying efficiency.
- Double water cooler ensures a lower return air temperature and dewpoint value.
- Equipped with a highly efficient drying hopper that takes up to 20% less floor space than previous versions.



CCD-230U/120H



Touch Control Panel

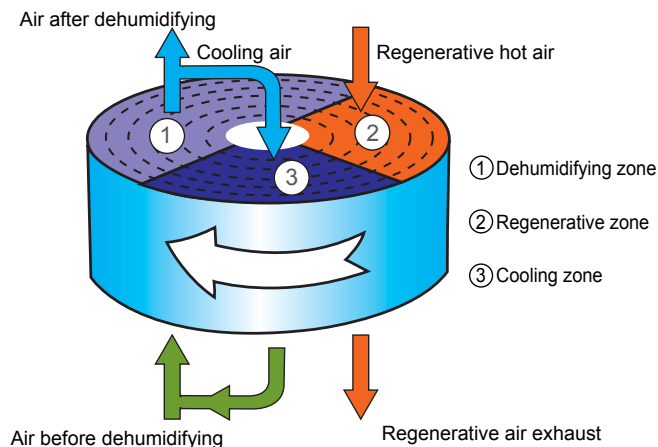
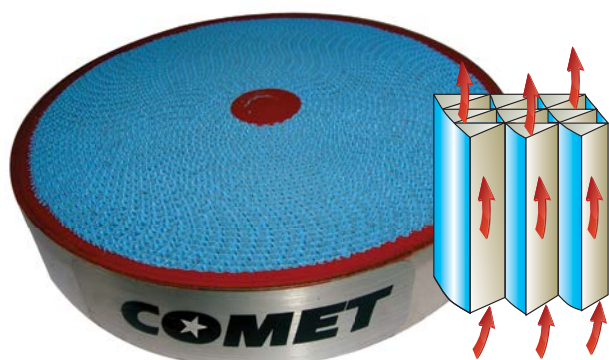


CCD-600U/400H



CCD-80Ux2/100H

Why should you want a Honeycomb Rotor?

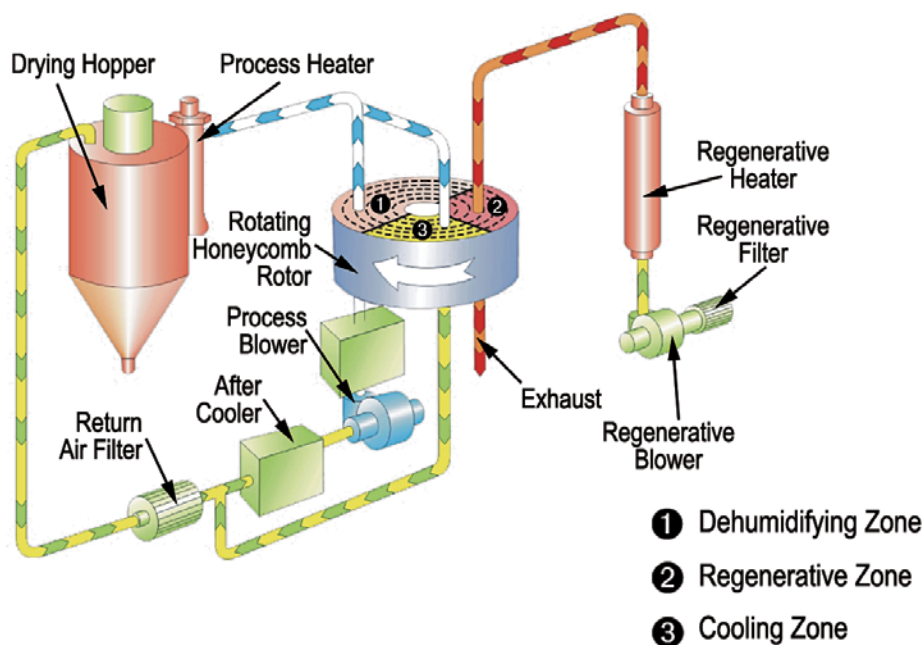


A honeycomb rotor is superior to common desiccant or rotary molecular sieves because over time, desiccant beads will produce dust in the processed air to the drying hopper and contaminate the plastic material.

The main section of the honeycomb rotor is made of ceramic fiber and organic additives that are sintered under a high temperature with a molecular sieve and silica gel acting as the bonding material binding it to the inside of the honeycomb, forming the honeycomb-like structure. The moisture of the return air is quickly absorbed by molecular sieves when passing through the numerous holes (matrix) within the honeycomb rotor. When it comes out of the rotor, it forms a low dry air dewpoint. Regenerating and dehumidifying have a similar principle and run simultaneously. The only difference is that the two process blowing actions are in opposite directions.

The honeycomb rotor is easy to clean and has a long service life. It does not saturate like molecular sieves that require regular replacement.

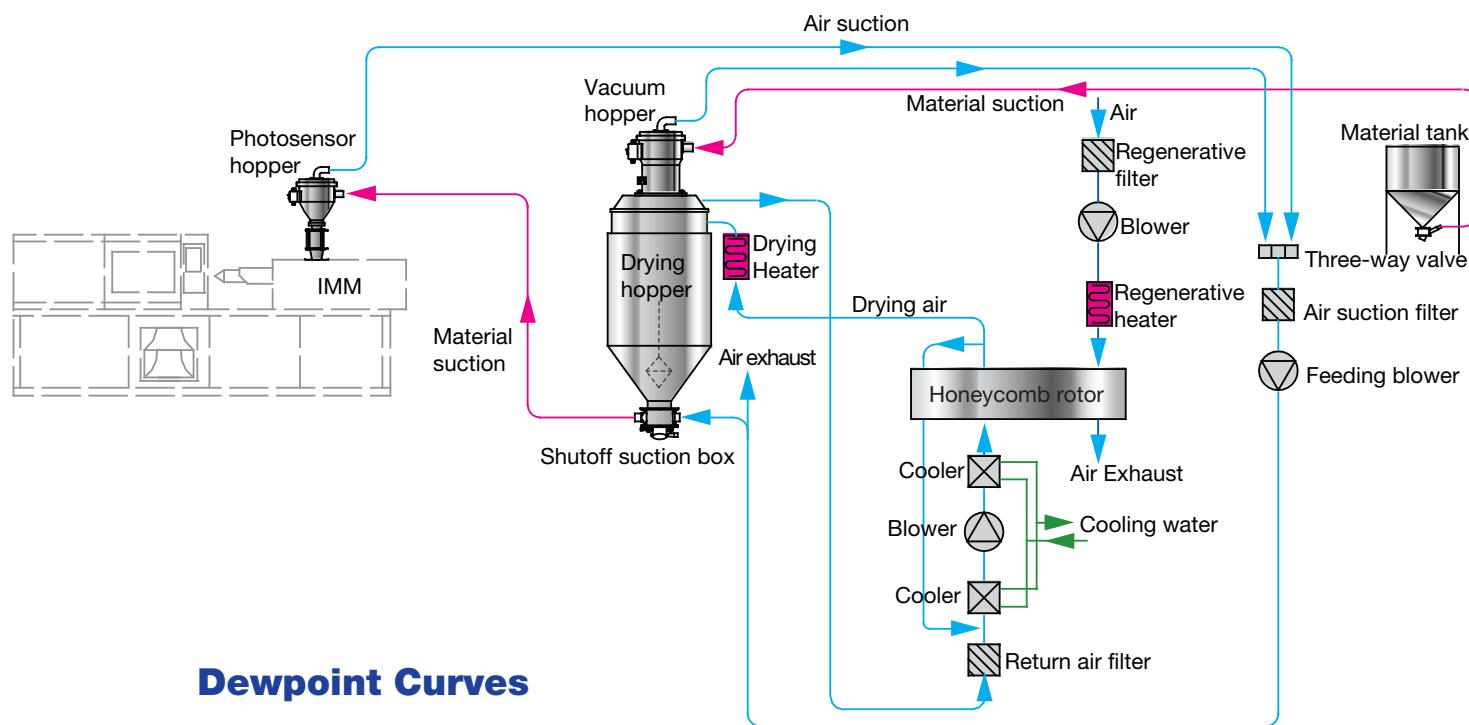
System Flow Chart



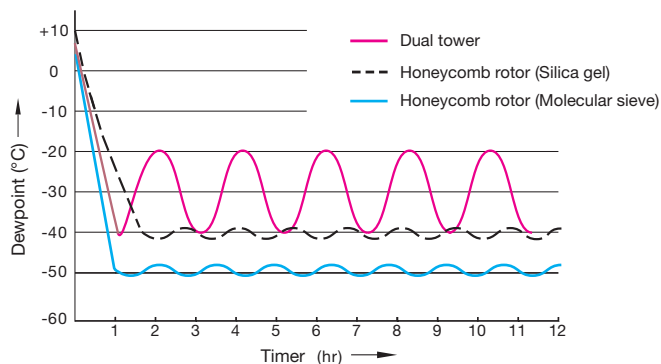
Working Principle

Honeycomb Rotor Dehumidifier: The honeycomb rotor is divided into three zones; dehumidifying, regenerative and cooling. As humid, ambient air flows in the dehumidifying zone, moisture content deposits on the silica gel surface of the rotor, the dry air is delivered by the fan to the outlet. When the dehumidifying zone becomes saturated, it very slowly rotates at a rotation speed optimum for the condition set by a gear motor. Saturated air is drawn into the honeycomb matrix of the rotor through the return air filter by the process blower. When the air passes through the matrix, moisture in the air is absorbed and dry air is discharged from the process outlet. The absorbed moisture is rotated by the rotor into the dehumidifying zone. At the same time, cool air is drawn from the opposite side through the regeneration filter, heated, and enters the regenerative zone of the rotor and exhausted to the outside. The continuous cycle of dehumidifying, regeneration and cooling make it possible to create a steady dehumidifying effect.

Suction: Material is drawn into the dryer from a storage bin or other container. When the magnetic reed switch detects there is no material, the suction motor runs to produce a vacuum inside the vacuum hopper. Raw material in storage bins is drawn into the hopper loader due to the difference in air pressure. When the material suction is complete, the motor stops. Gravity causes the raw material to drop into the drying hopper barrel. After drying, the raw material is removed to the hopper via a photosensor installed on the molding machine or hopper loader.



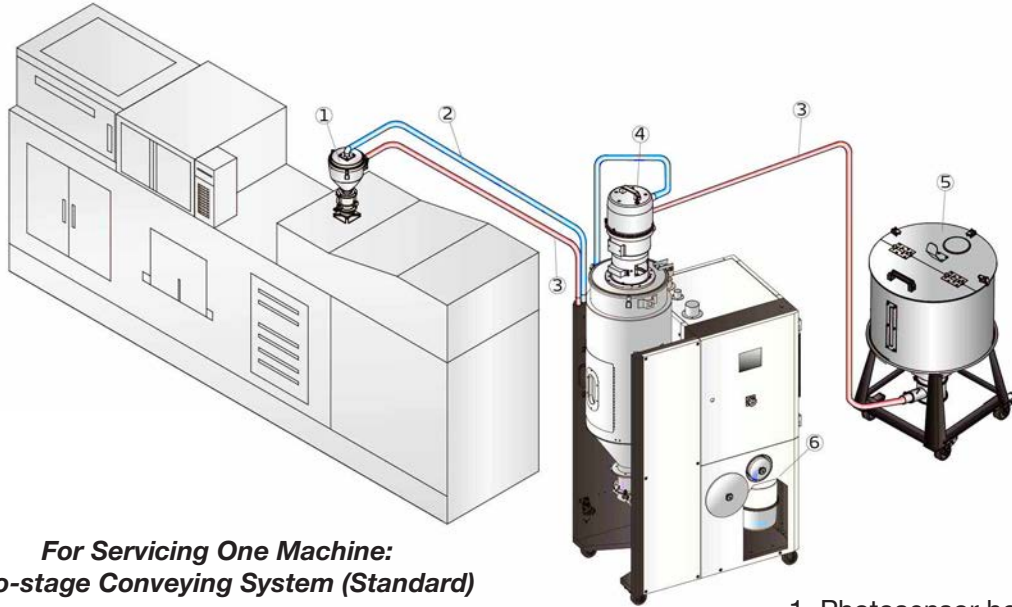
Dewpoint Curves



Application

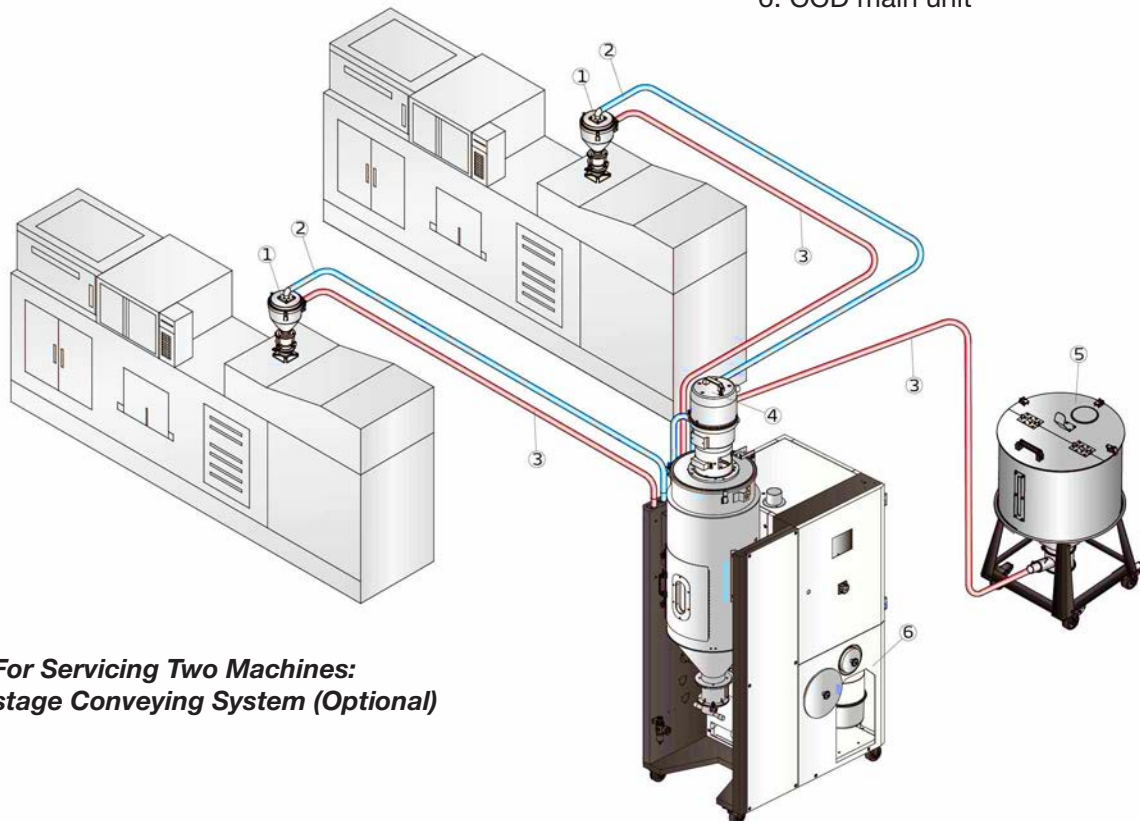
The CCD one-to-one (for one set of IMM) or the one-to-two (for two sets of IMM) can be used according to production demands. Double drying hoppers can be selected to meet production demands of two component IMM.

There are multiple options and accessories to meet various demands.



**For Servicing One Machine:
Two-stage Conveying System (Standard)**

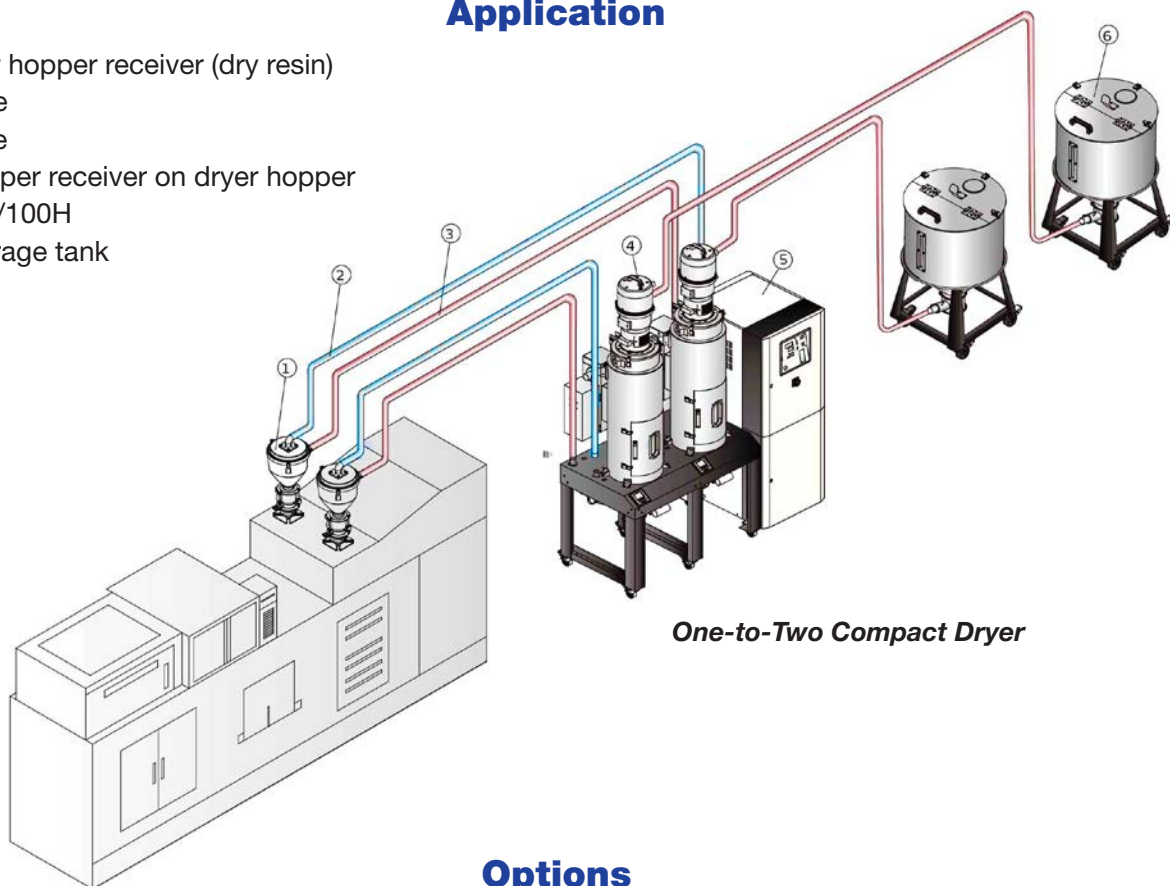
1. Photosensor hopper receiver (dry resin)
2. Vacuum pipe
3. Material pipe
4. Vacuum hopper receiver on dryer hopper
5. Material storage tank
6. CCD main unit



**For Servicing Two Machines:
Three-stage Conveying System (Optional)**

Application

1. Photosensor hopper receiver (dry resin)
2. Vacuum pipe
3. Material pipe
4. Vacuum hopper receiver on dryer hopper
5. CCD-80Uxs/100H
6. Material storage tank



One-to-Two Compact Dryer

Options

- A dewpoint monitor on the control sets the regeneration temperature automatically and lowers the regenerative heater's power consumption by as much as 10%.
- A portable dewpoint monitor is a convenient way to test dewpoint temperatures on different machines.
- A built-in dewpoint monitor conveniently monitors real-time dewpoint temperature.
- For energy saving drying, the HMI touch adjustable control can save up to 41% total power consumption and is convenient for machines running on automatic. Volume used per hour can be set between 40~100% drying capacity to save up to 35% total power consumption. The HMI is equipped with a heat generation recycler designed to recycle the heat exhausted via a heat plate exchanger and can reduce 3%~6% total power consumption. Dewpoint values can be set to automatically control the temperature required by regeneration ranging between -40°F (-40°C) to 50°F (10°C) based on the requirements of the plastic material, saving up to 10% of total power consumption.
- For models with a drying heat recycler, dehumidified low temperature air using a heat plate exchanger recycles hot, wet air to higher the air in the drying heater and reduce power consumption of the heater. The total power consumption can save up to 19%.
- Three-stage conveying function for feeding two sets of injection molding machines.
- A polished surface inside the hopper prevents material contamination.
- Air cooling function so there is no need for cooling water (applicable for CCD-40U/40H ~ CCD-230U/120H).
- Upgraded PLC and touch panel control.

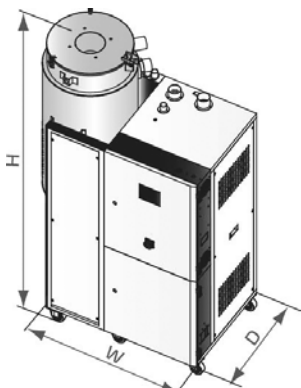


Portable Dewpoint Monitor

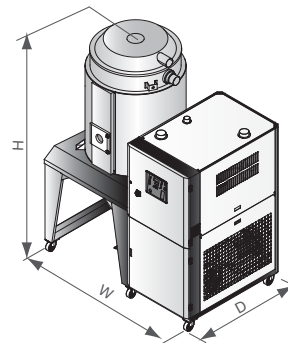


**Energy Saving
HMI Touch Control**

CCD Series



CCD 40U/40H ~ 450U/200H



CCD 600U/400H ~ 1200U/700H

Specifications

CCD Model	40U/ 40H	80U/ 40H	120U/ 80H	160U/ 80H	160U/ 120H	230U/ 120H	300U/ 200H	450U/ 200H	600U/ 400H	750U/ 400H	900U/ 700H	1200U/ 700H
Drying System												
Drying Heater (kW)	4	4	4	4	6	6	12	12	18	18	24	24
Drying Blower (kW)	0.18	0.14	0.75	0.75	0.75	0.75	1.5	1.5	3.75 / 4.5	3.75 / 4.5	7.5 / 8.6	7.5 / 8.6
Hopper Capacity (lbs)	55	110	165	220	220	330	440	661	882	1102	1323	1764
Dehumidifying System												
Regenerative Heater (kW)	3	3	3	3	4	4	4	4	7.2	7.2	10	10
Regenerative Blower (kW)	0.12	0.12	0.18	0.18	0.18	0.18	0.4	0.4	0.75 / 0.9	0.75 / 0.9	1.5 / 1.8	1.5 / 1.8
Dehumidified Air Qty. (m ³ /hr)	40	40	80	80	120	120	200	200	400 / 450	400 / 450	700 / 780	700 / 780
Conveying System												
Conveying Blower (kW)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.8	3.75	3.75
Blower Capacity (lbs/hr)	20	20	40	40	60	60	100	100	200	200	350	350
Material Pipe Dia. (inch)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2
Includes One Receiver CHR-U — or — CHR-U-E	-3U -3U-E	-6U -6U-E	-6U -6U-E	-6U -6U-E	-6U -6U-E	-12U -12U-E	-12U -12U-E	-12U -12U-E	-12U -12U-E	-12U -12U-E	-24U -24U-E	-24U -24U-E
Dimensions												
Height	(inch)	66	69	77	83	83	83	85	93	94	103	121
	(mm)	1672	1751	1957	2120	2102	2102	2160	2350	2380	2380	3070
Width	(inch)	41	42	44	44	44	48	57.5	58	69	69	84
	(mm)	1051	1066	1125	1125	1125	1223	1460	1460	1745	1745	2140
Depth	(inch)	29	29	29	29	29	29	40.2	40	50	50	84
	(mm)	734	734	734	734	734	734	1020	1020	1255	1255	1380
Weight	(lbs)	650	717	750	772	860	926	1236	1312	1411	1521	1874
	(kg)	295	325	340	350	390	420	565	595	640	690	900

Note: 1. Plastic material can be full dried with a dry air dewpoint temperature of $\leq -4^{\circ}\text{F}$ ($\leq -20^{\circ}\text{C}$).

2. Power: 3Ø, 230/400/460/575VAC, 50/50Hz.

We reserve the right to change specifications without prior notice.

Drying Capacity

Material	Drying Temp. (°C)	Drying Time (Hr.)	Drying Capacity (kg/hr)											
			40U / 40H	80U / 40H	120U/ 120H	160U/ 120H	160U/ 120H	230U/ 120H	300U/ 200H	450U/ 200H	600U/ 400H	750U/ 400H	900U/ 700H	1200U/ 700H
ABS	80	2-3	16		27		35		105		210		355	
CA	75	2-3	12		22		30		90		180		295	
CAB	75	2-3	12		22		30		90		180		295	
CP	75	2-3	16		27		35		106		210		355	
LCP	150	4	11		20		27		80		160		365	
POM	100	2	24		40		53		160		320		530	
PMMA	80	3	17		29		38		115		230		383	
IONOMER	90	3-4	10		17		22		66		133		220	
PA6 / 6.6 / 6.10	75	4-6	9		14		19		58		115		192	
PA11	75	4-5	10		17		23		69		138		230	
PA12	75	4-5	10		17		23		69		138		230	
PC	120	2-3	19		31		41		124		250		413	
PU	90	2-3	17		29		38		115		230		383	
PBT	130	3-4	13		23		31		93		186		310	
PE	90	1	47		80		106		318		637		1062	
PEI	150	3-4	11		20		27		80		160		265	
PET	160	4-6	11		19		25		75		150		300	
PETG	70	3-4	11		20		27		80		160		300	
PEN	170	5	13		23		30		90		180		300	
PES	150	4	13		23		30		90		900		300	
PMMA	80	3	17		29		28		115		230		385	
PPO	110	1-2	19		33		44		133		265		440	
PPS	150	3-4	11		20		27		80		160		265	
PI	120	2	24		40		53		160		320		530	
PP	90	1	39		66		88		265		530		885	
PS (GP)	80	1	39		66		88		265		531		885	
PSU	120	3-4	12		22		29		85		173		290	
PVC	70	1-2	19		33		44		135		265		442	
SAN (AS)	80	1-2	19		33		44		135		265		442	
TPE	110	3	18		30		40		125		250		413	

Notes: 1. Use separated drying hopper.

2. Moisture content lower than 0.005% after drying when in 68°F (20°C) ambient temperature and 65% relative humidity.